

# **FOLDABLE STORAGE STRUCTURE**

## **BACKGROUND OF THE INVENTION**

### **Field of the Invention**

The present invention relates to a storage structure, and more  
5 particularly to foldable storage structure that can be folded into a  
convenient shape for transportation, and can save space when not in use.

### **Description of the Prior Arts**

Conventional storage structure needs to be assembled or  
disassembled with tools no matter it is tongue-and-groove type or screw-  
10 locking type. And the conventional storage structure has been used for  
long period, however, there are still some defects need to be improved as  
follows:

First, the conventional storage structure needs to be  
disassembled with tools before transportation, and it should be assembled  
15 again with tools when it is transported to destination, so the conventional  
storage structure is time-consuming and inconvenient for transportation.

Second, the conventional storage structure still occupies much  
space when not in use.

The present invention has arisen to mitigate and/or obviate the  
20 afore-described disadvantages of the conventional storage structure.

## **SUMMARY OF THE INVENTION**

The primary object of the present invention is to provide a  
foldable storage structure, wherein all panels of the foldable storage

structure of the present invention are connected to the front and the rear panels by means of pivot connection, and the respective panels are provided with engaging structures (engaging blocks, engaging seats) so that the panels can be engaged and positioned with respect to each other, such that the foldable storage structure can be folded into a convenient shape for transportation, and can save space when not in use.

The present invention will become more obvious from the following description when taken in connection with the accompanying drawings, which shows, for purpose of illustrations only, the preferred embodiments in accordance with the present invention.

### **BRIEF DESCRIPTION OF THE DRAWINGS**

Fig. 1 is an exploded view of a foldable storage structure in accordance with a first embodiment of the present invention;

Fig. 2. is an assembly view of the foldable storage structure in folding state in accordance with a first embodiment of the present invention;

Fig. 3 is an assembly view of the foldable storage structure in unfolding state in accordance with a first embodiment of the present invention;

Fig. 4 is an illustrative view of a foldable storage structure in folding state in accordance with a second embodiment of the present invention;

Fig. 5 is a side assembly view of the foldable storage structure in

folding state in accordance with a second embodiment of the present invention;

Fig. 6 is an illustrative view of a foldable storage structure in folding state in accordance with a third embodiment of the present invention;

Fig. 7 is an assembly view of the foldable storage structure in accordance with the third embodiment of the present invention;

Fig. 8 is an illustrative view of a foldable storage structure in folding state in accordance with a fourth embodiment of the present invention;

Fig. 9 is an assembly view of the foldable storage structure in accordance with the fourth embodiment of the present invention;

Fig. 10 is an illustrative view of a foldable storage structure in folding state in accordance with a fifth embodiment of the present invention;

Fig. 11 is an assembly view of the foldable storage structure in accordance with the fifth embodiment of the present invention;

Fig. 12 is an assembly view of a foldable storage structure in accordance with the sixth embodiment of the present invention;

Fig. 13 is an assembly view of a foldable storage structure in accordance with the seventh embodiment of the present invention;

Fig. 14 is an illustrative view of a foldable storage structure in folding state in accordance with a seventh embodiment of the present

invention;

Fig. 15 is an assembly view of a foldable storage structure in accordance with the eighth embodiment of the present invention.

## **DETAILED DESCRIPTION OF THE PREFERRED**

### **EMBODIMENTS**

Referring to Fig. 1, wherein a foldable storage structure in accordance with the present invention (cupboard taken as an example) is shown and generally comprised of a front panel 10, two side panels 20, a rear panel 30, two door panels 40, a top panel 50 and a bottom panel 50, a bottom panel 51 and a partition board 80.

The front panel 10 is a ladder-like frame, on an upper side and a lower side of internal surface of the frame is defined with locating holes 11, 12 in a manner that the locating holes 11, 12 correspond to each other in pairs, on top and lower edges of the frame are provided with plural coupling seats 13.

The two side panels 20 corresponding to each other and each has coupling shaft 21 defined at a top and a bottom edges of a side thereof, on the top and the bottom edges of an opposite side to the coupling shaft 21 is provided with engaging member 22. Each of the side panels 20 is formed with plural through apertures 23 at a top and a bottom sides thereof. The coupling shaft 21 serves to insert in the locating holes 11. Furthermore, on opposite side to the through aperture 23 can be provided with "L"-shaped engaging blocks 24.

The rear panel 30 is a board having stepped peripheral sides 31, on internal surface of the peripheral sides is provided with engaging seat 32 corresponding to the engaging member 22 of the side panels 20. The rear panel 30 is further provided at a top and a bottom sides thereof with  
5 coupling seats 33.

The two door panels 40 are located opposite to each other and each has movable shaft 41 defined on both top and bottom sides thereof for insertion into the locating holes 12 of the front panel 10.

The top panel 50 and the bottom panel 51, each of which  
10 consists of two foldable boards 53 connected with each other in pivot-connection manner through central coupling member 52 formed at a center thereof. The two foldable boards 53 are connected to the plural coupling seats 13 of the front panel 10 and the plural coupling seats 33 of the rear panel 30 respectively in a pivot-connection manner through  
15 coupling blocks 54 formed on periphery of the foldable boards 53 and pins 55. Whereas the two foldable boards 53 of the top and the bottom panels 50, 51 each provided at both sides with L-shape inserting seats 56 corresponding to the plural apertures 23 at top and bottom sides of the side panels 20.

20 The partition board 80 is arranged beside the door panels 40, on a lower periphery of which is defined with protrusive edge 81 corresponding to the L-shape engaging blocks 24.

Referring to Fig.2, a space is formed between the front panel 10

and the rear panel 30 when folding the cupboard of the present invention,  
so as to receive the door panels 40, the side panels 20, the foldable  
boards 53 of the top and the bottom panels 50, 51. Thus, the foldable  
storage structure in accordance with the present invention is convenient  
5 for transportation and can save space when not in use.

Referring to Fig. 3, in assembly, the user only needs to pull the  
front and the rear panels 10, 30, such that the foldable boards 53 of the  
top and the bottom panels 50, 51 will stretch out by rotating upward  
about the central coupling member 52. And then rotate the two side  
10 panels 20 in the locating holes 11 at both sides of the front panel 10 and  
the side panels 20 are positioned in the respective locating holes 11. At  
this moment, the engaging member 22 at top and bottom edges of the  
side panels 20 is used to engage in the engaging seat 32 of the rear panel  
30 in a manner that the L-shape inserting seats 56 at both sides of the top  
15 and the bottom panels 50, 51 insert in the respective through apertures 23.  
Such that the respective components of the present invention have been  
positioned, and then the protrusive edge 81 of the partition board 80 is  
engaged in the respective L-shape engaging blocks 24 of the side panels  
20. And thus, the cupboard in accordance with the present invention is  
20 assembled and the user can open or close the door panels 40 freely.

Referring to Figs. 4 and 5, which shows another embodiment of  
the present invention, wherein the top and the bottom panels 50, 51 also  
can be disposed at a rear of the foldable storage structure by positioning

the top and the bottom panels 50, 51 on a top and a bottom thereof respectively. And the rear panel 30 and the partition board 80 can be received in the space between the front and the rear panels 10, 30 and positioned between the top and the bottom panels 50, 51.

5 Referring further to Figs. 6 and 7, wherein the top and the bottom panels 50, 51 are a complete board respectively and can be folded upward.

Figs. 8 and 9 show another embodiment of the present invention, wherein the front panel 10 is arranged with outer surface facing down, 10 the rear panel 30 can be in the form of a hollow frame, and the door panels 40 are omitted. By such arrangements, the side panels 20, the top and the bottom panels 50,51 can form a collapsible drawer by incorporating with the front panel 10.

Referring to Figs. 10 and 11, wherein a shelf 61 can be mounted 15 over the front panel 10 and the rear panel 30, and the shelf 61 is further provided with two central coupling members 52 at a center thereof for coupling the foldable boards 53, and a plural pulleys 60 are disposed under the panels. And thus, a shelf can be formed above the foldable storage structure of the present invention after assembly. And the drawer 20 of the embodiment in Figs. 8 and 9 can right be inserted into the shelf, so as to form a multipurpose foldable storage structure.

Referring to Fig. 12, wherein a double-drawer structure is another embodiment of the present invention. Figs. 13 and 14, wherein

the front panel 10 is arranged with outer surface facing down, the rear panel 30 can be in the form of a hollow frame, and the door panels 40 are omitted. By such arrangements, the side panels 20, the top and the bottom panels 50, 51 can form a collapsible drawer by incorporating with  
5 the front panel 10.

In a further embodiment of the present invention in Fig. 15 that a pet cage is taken as an example, wherein the side panels 20, the rear panel 30, the top and the bottom panels 50, 51 are defined with plural through apertures 90, so as to form a pet cage.

10 While we have shown and described various embodiments in accordance with the present invention, it should be clear to those skilled in the art that further embodiments may be made without departing from the scope of the present invention.